Amendments to the Specification

Replace the title with the following:

AUTOMATIC PROGRAMMING APPARATUS FOR GENERATING A NUMERICAL CONTROL PROGRAM FOR CONTROLLING A CUTTING TOOL

Replace the Abstract with the following:

An automatic programming apparatus 1 comprises: storing sections 11, 12, 13, and 14 for storing shape data of a product having a recess and a protrusion formed in the bottom surface inside the recess, workpiece data, tool data, and machining condition data; a concave portion machining tool storing section 15 for storing the identification data of a plurality of tools selected in advance as tools to be used for the machining of [[said]] the recess; a CL data generating section 16 for referring to the identification data, thereby setting a plurality of tool combinations, and then generating CL data of the recess for each combination; a machining time calculating section 18 for calculating the machining time for each combination on the basis of the CL data; and an NC program generating section 20 for generating an NC program by using the CL data having the minimum machining time.

Replace the paragraph beginning on page 1 at line 4 with the following:

The present invention relates to an automatic programming apparatus for generating ~~an NC~~ a numerical control (NC) program for numerically controlling a machine tool such as to cause a cutting tool to machine a workpiece into a product shape having a recess and one or more protrusions formed in the bottom surface inside the recess.

Replace the paragraph beginning on page 2 at line 4 with the following:

On the basis of [[CAD]] computer aided design (CAD) data (product shape data) inputted appropriately, the shape recognizing means 62 performs the process of recognizing a product shape (the shape of a finished workpiece) having a recess and one or more protrusions formed in the bottom surface inside the recess. On the basis of this recognized product shape, the machining region dividing means 63 performs the process of dividing the shape of the workpiece into a plurality of machining regions each of which can be machined using a single tool.

Replace the paragraph beginning on page 4 at line 12 with the following:

Nevertheless, according to the configuration of this automatic NC data generation apparatus 60, the recess 51 is machined using a single tool throughout the machining ranging from rough cutting to finishing. Further, [[a]] the tool ~~having~~ has a diameter smaller than the minimum curvature radius of the concave surfaces 53 in the recess 51 and smaller than the minimum spacing of the wall 54 gaps in the recess 51. This configuration is appropriate for finishing but not for rough cutting, because in rough cutting, when a portion to be cut off is larger than the tool diameter, a plurality of cutting operations become necessary in order to cut off the portion completely. This has the problem of a longer machining time.

Replace the paragraph beginning on page 6 at line 2 with the following:

a [[CL]] cutter location (CL) data generating section for setting machining regions and then generating CL data containing at least a tool to be used, the feed speed thereof, and the traveling positions of said to-be-used tool in a work coordinate system for each of said machining regions having been set, on the basis of said data stored in said product shape data

storing section, said workpiece data storing section, said tool data storing section, and said machining condition data storing section; and